October 10, 2012

Mr. David Lacey
Oregon Department of Environmental Quality
2020 SW Fourth Avenue, Suite 400
Portland, OR 97201-4987

Subject: **Response to DEQ Comments**
Risk Assessment, Feasibility Study, and Source Control Evaluation
Swan Island Upland Facility, Operable Unit 4
ECSI No. 271

Dear David:

This letter provides the Oregon Department of Environmental Quality (DEQ) with a response to the comments received on the Swan Island Upland Facility, Operable Unit 4 *Risk Assessment, Feasibility Study, and Source Control Evaluation* (Ash Creek, 2012). The comments were provided to the Port of Portland (Port) in a letter from the DEQ dated July 24, 2012. The DEQ comments are repeated (in italics) followed by the Port response.

Risk Assessment

1. *Current guidance documents should have been used.*

   - *The latest DEQ human health risk assessment guidance is from 2010, not 2003. Current guidance supports the use of Risk-Based Concentrations (RBCs) to calculate risk. The screening procedure for multiple chemicals has been simplified.*

   - *The most current table of RBCs is from 2011, not 2009. The current RBCss for occupational exposure to PCBs is 0.56 mg/kg, not 0.98 mg/kg. For TPH-diesel, RBCss Occupational is 14,000 mg/kg, and the RBCss Construction Worker.*

   - *The current version of EPA's ProUCL is 4.1, not 4.00.04. UCL values developed using the older program appear to be reasonable.*

   Based on our review the use of current RBC values will not change the list of chemicals of potential concern (COPCs) or the risk calculations for arsenic and carcinogenic PAHs based on current RBCs. Therefore, no changes are requested for this document, but future risk assessments submitted to DEQ should be based on current guidance.

   Response. Noted.

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2. ***Section 4.1.3 Soil Exposure Point Calculations, Page 13, second bullet.*** *The report does not state how the 90UCL was chosen from the ProUCL output. It appears that the recommendations provided by ProUCL for the 95UCL were used for selecting the 90UCL. This approach is acceptable to DEQ, however the method for deciding how the 90UCL was selected should have been explained in the report. Future risk assessments submitted to DEQ should include an explanation.*

   Response. Noted.

3. ***Section 4.1.3 Soil Exposure Point Calculations, Page 13, third bullet.*** *EPA does not recommend using ½ detection limit for non-detect values. For datasets that include non-detected values, the mean should be calculated using a method such as Kaplan-Meir. The results are likely not substantially different that the mean value reported in Table 2, therefore no changes are requested to this document. Future risk assessments submitted to DEQ should follow EPA's recommendation in dealing with non-detected values.*

   Response. Noted. For clarification, the 90UCL values were calculated using Kaplan-Meir. The ½-detection limit method was used only for calculating mean values.

4. ***Section 4.3.1 Non-Carcinogenic Effect.*** *The report states that there are no non-carcinogens identified as COPCs. DEQ notes that all chemicals, including those evaluated as carcinogens, have non-cancer effects. However, there are no reference doses available for carcinogenic PAHs, so non-cancer effects cannot be quantitatively evaluated. For arsenic, the lowest acceptable concentrations will be based on cancer effects. No changes to the report are requested.*

   Response. Noted.

5. ***Figure 5 Human Health Conceptual Site Model.*** *Direct contact with soil should have explicitly shown that this includes incidental ingestion, dermal contact, and inhalation. For groundwater, these exposure routs are explicitly shown. However, the test on page 11 is clear that the different exposure routs included with "direct contact" were considered, therefore no changes to the report are requested.*

   Response. Noted.

6. ***Table A-4. URS Soil Analytical Results.*** *The table does not present the method reporting limits, parameters, or screening level value included in the volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), or polychlorinated biphenyls (PCBs). DEQ request that the tables be revised so that the adequacy of the method reporting limits can be compared to appropriate screening level values or that an evaluation of the adequacy of the method reporting limits be presented.*

   Response. A table presenting the range of method reporting limits (MRLs) for VOCs, SVOCs, and PCBs along with the current RBCss screening criteria is attached. Except for two PAHs, method reporting limits were less than the RBCs. PAHs were also analyzed by SIM methods with lower reporting limits so results are acceptable.

7. ***Table A-8. URS Grab Groundwater Analytical Results.*** *The table does not present the method reporting limits, parameters, or screening level value included in the volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), or polychlorinated biphenyls (PCBs). DEQ request that the tables be revised so that the adequacy of the method reporting limits can be compared to appropriate screening level values or that an evaluation of the adequacy of the method reporting limits be presented.*

   Response. A table presenting the range of method reporting limits (MRLs) for VOCs, SVOCs, and PCBs along with the JSCS screening criteria is attached. MRLs are generally consistent with industry standards (PAHs were also analyzed by SIM methods).

8. ***Appendix C.*** *The first sets of ProUCL results for 0-15 feet do not appear to represent all the available data. We spot-checked evaluations of arsenic and benzo(a)pyrene, and were able to confirm the results for the subsequent 0-3 feet and 0-15 feet sets of UCL output sheets. Input values should have been explicitly presented (showing sample locations) so that the calculations could have been more easily confirmed.*

   Response. Noted.

9. ***Appendix C.*** *The datasets included in the appendix show reporting limits for non-detected values. EPA and DEQ risk assessment guidance is to use estimated (J) values for detected concentrations that are below reporting limits. ProUCL is designed to incorporate non-detect values in estimating UCLs. It is inappropriate to substitute reporting limits for detection limits. Future submittals should report method detection limits and estimated values.*

   Response. Noted.

Feasibility Study

10. ***Section 5.1.1 Remedial Action Objectives.*** *The remedial action objectives (RAOs) are not clearly stated. RAOs should identify receptor(s) and pathway(s) that need to be addressed, e.g. 1) prevent site workers from direct contact of contaminated soil with concentrations exceeding RBCss Occupational or Construction Workers for benzo(a)pyrene 2) prevent site workers from direct contact of contaminated soil with concentrations exceeding RBCss Occupational Workers for arsenic.*

    Response. Noted.

11. ***Section 5.4.2*** *Cap (Detailed Analysis of Remedial Action Alternatives). The capping alternative should identify development and implementation of a DEQ-approved Operations and Maintenance Plan (OMP) for the site to monitor and maintain the implemented remedy, in addition to the soil management plan (SMP). An OMP is somewhat covered in the SMP but should be identified in the report title (and procedures for implementation better-described). DEQ will provide comments on the SMP separately.*

    Response. This will be addressed in response to the DEQ comments on the SMP.

Source Control Evaluation

12. ***Section 6.1.2 Chemicals of Interest.*** *DEQ requests that a figure showing the locations of sediment samples presented in Table D-1 through D6 be submitted.*

    Response. The noted sample locations are shown on Map 2.2-1k from LWG Draft Final RI report dated August 29, 2011. A copy of the Map is attached.

13. *DEQ agrees with the findings and conclusions presented in the source control evaluation.*

- *Groundwater is the only potential pathway associated with OU-4 (stormwater is a relevant pathway but will be evaluated by the current property operator).*
- *The groundwater pathway does not appear to pose a recontamination risk to river sediments based on current soil, groundwater, and in-river sediment data.*
- *Implementation of source control measures is not recommended for OU-4 at this time.*

Response. Noted.

Next Steps

Based on our review of the report, DEQ anticipates the following steps:

1. *Port submit updated tables with reporting limits (or evaluation of the reporting limits) and a figure with sediment locations as requested above.*

   Response. Noted.

2. *DEQ will propose implementation of source control measures are not needed at this time and document this in the form of a Draft Source Control Decision.*

   Response. Noted.

3. *DEQ will submit the Draft Source Control Decision to EPA and the Portland Harbor Government team for review.*

   Response. Noted.

4. *DEQ/Port will address EPA and Portland Harbor Government team review comments as needed.*

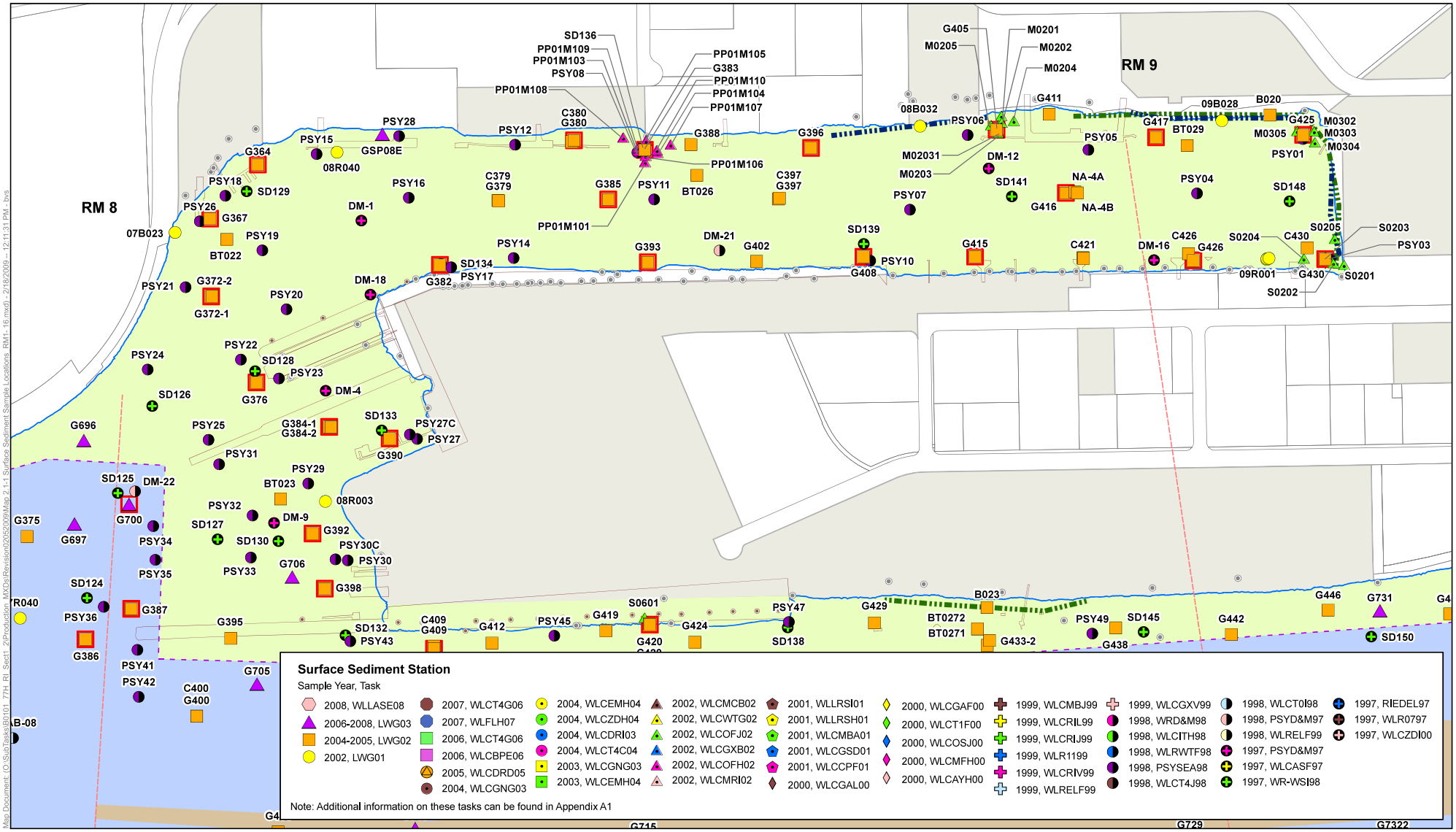
   Response. Noted.

Please call me at (503) 415-6325 if you have any questions.

Sincerely,

Dwight Leisle
Environmental Project Manager

c: Kristine Koch, EPA
Rich Muza, EPA
Suzanne Barthelmess, Port
Richard Vincent, Port
David Ashton, Port
Michael Pickering, Ash Creek Associates
Mark Lewis, Formation Environmental
LWP File



integral consulting inc.

LWG Lower Willamette Group

FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS .
Channel & River miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

0 150 300 450 600 750 Feet

Map Features

- River Miles
- Navigation Channel
- West/East River Zones
- River Edge +13 ft NAVD

Outfalls

- Outfall
- Dock Drain
- Roof Drain

- Bridges
- Docks and Structures
- Freeways
- Arterials

- Bioassay Sampling Locations
- Dredge and Cap Stations
- Capping Areas
- Dredging Areas

- Upland ECSI Sites (2008)
- Waterfront Taxlots
- Shorebird Sample Transect
- Round 1 Beach Sample Collection Area

DRAFT
DO NOT QUOTE OR CITE
This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

Map 2.2-1k
Portland Harbor RI/FS
Remedial Investigation Report
Surface Sediment Sampling Locations
River Mile 08 to 09 -Swan Is. East

Table 1 - Analytical Detection Limits Summary - PCBs/Butyl Tins/SVOCs/VOCs
URS OU4, Swan Island Upland Facility
Portland, Oregon

Sample Number	Water	JSCS	Soil	RBC
Polychlorinated Biphenyls (PCBs) by EPA Method 8082				
	ug/L	ug/L	ug/kg	ug/kg
PCB-1016	<1	0.960	<33	560
PCB-1221	<1	0.034	<33	560
PCB-1232	<1	0.034	<33	560
PCB-1242	<1	0.034	<33	560
PCB-1248	<1	0.034	<33	560
PCB-1254	<1	0.033	<33	560
PCB-1260	<1	0.034	<33	560
Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C				
	ug/L	ug/L	ug/kg	ug/kg
1,2,4-Trichlorobenzene	<5	8.2	<330 to <3300	--
1,2-Dichlorobenzene	<5	49	<330 to <3300	19,000,000
1,2-Diphenylhydrazine	<10	--	<330 to <3300	--
1,3-Dichlorobenzene	<5	14	<330 to <3300	--
1,4-Dichlorobenzene	<5	2.8	<330 to <3300	63,000
2,4,5-Trichlorophenol	<10	3,600	<800 to <8000	--
2,4,6-Trichlorophenol	<5	2.4	<330 to <3300	--
2,4-Dichlorophenol	<5	110	<330 to <3300	--
2,4-Dimethylphenol	<5	730	<330 to <3300	--
2,4-Dinitrophenol	<25	73	<800 to <8000	--
2,4-Dinitrotoluene	<5	3.4	<800 to <8000	--
2,6-Dinitrotoluene	<5	37	<330 to <3300	240,000
2-Chloronaphthalene	<5	490	<330 to <3300	--
2-Chlorophenol	<5	30	<330 to <3300	--
2-Methylnaphthalene	<5	0.2	<330 to <3300	--
2-Nitroaniline	<25	110	<800 to <8000	--
2-Nitrophenol	<5	150	<330 to <3300	--
3,3´-Dichlorobenzidine	<10	--	<330 to <3300	--
3-Nitroaniline	<25	3.2	<800 to <8000	--
4,6-Dinitro-2-methylphenol	<25	--	<800 to <8000	--
4-Bromophenyl phenyl ether	<5	--	<330 to <3300	--
4-Chloro-3-methylphenol	<5	--	<330 to <3300	--
4-Chloroaniline	<5	150	<330 to <3300	--
4-Chlorophenyl phenyl ether	<5	--	<330 to <3300	--
4-Nitroaniline	<25	3.2	<800 to <8000	--
4-Nitrophenol	<25	150	<800 to <8000	--
Acenaphthene	<5	0.2	<330 to <3300	19,000,000
Acenaphthylene	<5	0.2	<330 to <3300	--
Aniline	<5	12	<330 to <3300	--
Anthracene	<5	0.2	<330 to <3300	93,000,000
Benz(a)anthracene	<5	0.018	<330 to <3300	2,700
Benzo(a)pyrene	<5	0.018	<330 to <3300	270
Benzo(b)fluoranthene	<5	0.018	<330 to <3300	27,000
Benzo(g,h,i)perylene	<5	0.2	<330 to <3300	--
Benzo(k)fluoranthene	<5	0.018	<330 to <3300	27,000
Benzoic acid	<25	42	<1600 to <16000	--
Benzyl alcohol	<5	8.6	<330 to <3300	--
Bis(2-chloroethoxy)methane	<5	--	<330 to <3300	--
Bis(2-chloroethyl)ether	<5	--	<330 to <3300	--
Bis(2-chloroisopropyl)ether	< 5	--	<330 to <3300	--
Bis(2-ethylhexyl)phthalate	< 5	2.2	<330 to <3300	150,000
Butyl benzyl phthalate	< 5	3	<330 to <3300	--
Carbazole	< 5	3.4	<330 to <3300	--
Chrysene	< 5	0.018	<330 to <3300	250,000
Dibenz(a,h)anthracene	< 5	0.018	<330 to <3300	270
Dibenzofuran	< 5	3.7	<330 to <3300	--
Diethyl phthalate	< 5	3	<330 to <3300	--
Dimethyl phthalate	< 5	3	<330 to <3300	--
Di-n-butyl phthalate	< 5	3	<330 to <3300	--
Di-n-octyl phthalate	< 5	3	<330 to <3300	--
Fluoranthene	< 5	0.2	<330 to <3300	8,900,000
Fluorene	< 5	0.2	<330 to <3300	12,000,000
Hexachlorobenzene	< 5	0.00029	<330 to <3300	1,200
Hexachlorobutadiene	< 5	0.86	<330 to <3300	--
Hexachlorocyclopentadiene	< 5	5.2	<330 to <3300	--
Hexachloroethane	< 5	3.3	<330 to <3300	90,000
Indeno(1,2,3-cd)pyrene	< 5	0.018	<330 to <3300	2,700
Isophorone	< 5	71	<330 to <3300	--
Naphthalene	< 5	0.2	<330 to <3300	23,000
Nitrobenzene	< 5	3.4	<330 to <3300	--
N-Nitrosodi-n-propylamine	< 5	--	<330 to <3300	--
N-Nitrosodiphenylamine	< 5	6	<330 to <3300	--
Pentachlorophenol	< 25	0.56	<800 to <8000	3,900
Phenanthrene	< 5	0.2	<330 to <3300	--
Phenol	< 5	2,560	<330 to <3300	--
Pyrene	< 5	0.2	<330 to <3300	6,700,000
Pyridine	< 5	--	<330 to <3300	--
2-Methylphenol	< 5	--	<330 to <3300	--
3 & 4-Methylphenol	< 5	--	<330 to <3300	--

Sample Number	Water	JSCS	Soil	RBC
Volatile Organic Compounds (VOCs) by EPA Method 8260B				
	ug/L	ug/L	mg/kg	mg/kg
Acetone	<20.0	1,500	<0.944 to <1.52	--
Benzene	<0.250	1.2	<0.0118 to <0.0190	34.0
Bromobenzene	<0.500	--	<0.0236 to <0.0381	--
Bromochloromethane	<0.500	--	<0.0236 to <0.0381	--
Bromodichloromethane	<0.500	1.1	<0.0236 to <0.0381	15.0
Bromoform	<1.00	8.5	<0.0472 to <0.0761	240.0
Bromomethane	<5.00	8.7	<0.472 to <0.761	330
2-Butanone (MEK)	<10.0	--	<0.472 to <0.761	--
n-Butylbenzene	<1.00	--	<0.0236 to <0.0381	--
sec-Butylbenzene	<1.00	--	<0.0236 to <0.0381	--
tert-Butylbenzene	<0.500	--	<0.0236 to <0.0381	--
Carbon tetrachloride	<0.500	0.51	<0.0236 to <0.0381	31
Chlorobenzene	<0.500	50	<0.0236 to <0.0381	4,300
Chloroethane	<2.00	23	<0.472 to <0.761	>100,000
Chloroform	<2.00	0.17	<0.236 to <0.381	25
Chloromethane	<5.00	2.1	<0.236 to <0.381	25,000
2-Chlorotoluene	<0.500	--	<0.0236 to <0.0381	--
4-Chlorotoluene	<0.500	--	<0.0236 to <0.0381	--
1,2-Dibromo-3-chloropropane	<2.00	--	<0.0944 to <0.152	--
Dibromochloromethane	<0.500	0.79	<0.0472 to <0.0761	16
1,2-Dibromoethane (EDB)	<0.500	--	<0.0236 to <0.0381	0.68
Dibromomethane	<0.500	61	<0.0236 to <0.0381	--
1,2-Dichlorobenzene	<0.500	49	<0.0236 to <0.0381	19,000
1,3-Dichlorobenzene	<0.500	14	<0.0236 to <0.0381	--
1,4-Dichlorobenzene	<0.500	2.8	<0.0236 to <0.0381	63
Dichlorodifluoromethane	<1.00	390	<0.0472 to <0.0761	--
1,1-Dichloroethane	<0.500	--	<0.0236 to <0.0381	250
1,2-Dichloroethane (EDC)	<0.500	--	<0.0236 to <0.0381	15
1,1-Dichloroethene	<0.500		<0.0236 to <0.0381	12,000
cis-1,2-Dichloroethene	<0.500	--	<0.0236 to <0.0381	620
trans-1,2-Dichloroethene	<0.500	--	<0.0236 to <0.0381	4,500
1,2-Dichloropropane	<0.500	--	<0.0236 to <0.0381	--
1,3-Dichloropropane	<0.500	--	<0.0236 to <0.0381	--
2,2-Dichloropropane	<0.500	--	<0.0236 to <0.0381	--
1,1-Dichloropropene	<0.500	--	<0.0236 to <0.0381	--
cis-1,3-Dichloropropene	<0.500	0.055	<0.0472 to <0.0761	--
trans-1,3-Dichloropropene	<0.500	0.055	<0.0472 to <0.0761	--
Ethylbenzene	<0.500	7.3	<0.0236 to <0.0381	140
Hexachlorobutadiene	<2.00	0.86	<0.0944 to <0.152	--
2-Hexanone	<10.0	--	<0.472 to <0.761	--
Isopropylbenzene	<0.500	660	<0.0236 to <0.0381	24,000
4-Isopropyltoluene	<0.500	--	<0.0236 to <0.0381	--
4-Methyl-2-pentanone (MiBK)	<10.0	--	<0.472 to <0.761	--
Methyl tert-butyl ether (MTBE)	<0.500	37	<0.0472 to <0.0761	--
Methylene chloride	<5.00	8.9	<0.236 to <0.381	1,000
Napthalene	<5.00	0.2	<0.236 to <0.381	23
n-Propylbenzene	<0.500	--	<0.0236 to <0.0381	--
Styrene	<0.500	100	<0.0236 to <0.0381	51,000
1,1,1,2-Tetrachloroethane	<0.500	--	<0.0472 to <0.0761	--
1,1,2,2-Tetrachloroethane	<0.500	--	<0.0236 to <0.0381	--
Tetrachloroethene (PCE)	<0.500	0.12	<0.0236 to <0.0381	940
Toluene	<1.00	9.8	<0.0944 to <0.152	24,000
1,2,3-Trichlorobenzene	<2.00	--	<0.0944 to <0.152	--
1,2,4-Trichlorobenzene	<2.00	8.2	<0.0944 to <0.152	--
1,1,1-Trichloroethane	<0.500	--	<0.0472 to <0.0761	430,000
1,1,2-Trichloroethane	<0.500	--	<0.0236 to <0.0381	25
Trichloroethylene (TCE)	<0.500	0.17	<0.0236 to <0.0381	46
Trichlorofluoromethane	<1.00	1,300	<0.236 to <0.381	63,000
1,2,3,-Trichloropropane	<1.00	--	<0.0472 to <0.0761	--
1,2,4-Trimethylbenzene	<1.00	--	<0.0472 to <0.0761	2,000
1,3,5-Trimethylbenzene	<1.00	--	<0.0472 to <0.0761	3,100
Vinyl Chloride	<0.500	0.015	<0.0236 to <0.0381	4
m,p-Xylene	<1.00	1.8	<0.0472 to <0.0761	19,000
o-Xylene	<0.500	13	<0.0236 to <0.0381	19,000

Notes:

1. JSCS -- DEQ/EPA, 2005. Portland Harbor Joint Source Control Strategy – Final (Table 3-1 Updated July 16, 2007). December 2005.
2. RBC = DEQ risk-based concentration for lower of construction worker or occupational direct contact (June 2012 update). Value for PCBs is for total.
3. -- = Not applicable or not available.
4. µg/L = micrograms per liter.
5. µg/kg = micrograms per kilogram.